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JUL 13 2006

REMARKS

Claims in the Application. Claim 15 has been cancelled from this application. Claims 1-3, 13, 16-27 and 37-38 have been amended. Claims 39-48 have been added to this application. Accordingly, Claims 1-14 and 16-48 are active in the application. Reconsideration is respectfully requested.

Requirement for Restriction and Election of Species. The Examiner has required restriction between the following groups of claims:

- I. Claims 1-14 and 27-38, drawn to a method of fracturing a subterranean formation;
and
- II. Claims 15-26, drawn to a fracturing fluid.

Applicant has elected Group I, represented by Claim 1-14 and 27-38. It is believed that the cancellation of Claim 15 and the amendment of Claims 16-26 to read on newly added "method" Claim 39 renders unnecessary further discussion of the restriction requirement.

The Examiner has further required an election of species between the metal crosslinking agent containing aluminum and zirconium of Claims 10 and 34 and the metal crosslinking agents of Claims 11 and 35. Applicant has elected Claims 10 and 34. Claims readable on the elected species are Claims 1-10, 12-14, 16-22, 24-34 and 36-48. The Examiner is respectfully requested to reconsider the requirement for election of species. As set forth below, the essence of the invention is use of lactic acid or a lactic acid salt to delay crosslinking between a synthetic polymer and metal crosslinking agent.

Examiner's Rejection Over Hanlon. The Examiner has rejected Claims 1, 7, 9, 12, 27, 31, 33 and 36 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,460,751 ("Hanlon"). This ground of rejection is traversed.

Hanlon discloses a method of reducing the permeability of a subterranean formation to water by reducing the mobility of water in the wellbore (col. 2-3, bridging paragraph) by injecting into the formation a composition of water, lactic acid and a zirconium compound.

Applicant's claims are directed to a method of fracturing and not to a method of reducing the permeability of the formation. In fact, the method of Applicant is the reverse of the method of *Hanlon*. In *Hanlon*, the objective is to *retard* permeability, in Applicant's method; the objective is to *enhance* permeability. There is no indication that the pressure of injection in the claimed fracturing method (by which fractures are created) would be similar to the pressures

employed in the process of *Hanlon*. The viscosity of a fracturing fluid in general is elevated before the fluid contacts the formation since it is the pressure created by the viscous fluid which causes fracturing of the formation. In *Hanlon*, on the other hand, the thin fluid is deep into the wellbore before it is crosslinked or thickened. Note, for instance, the discussion in col. 7, l. 65 – col. 8, l. 35 of *Hanlon*.

Further, the composition employed by Applicant in the claimed fracturing method employs an aqueous acid. An aqueous acid is not employed in the process of *Hanlon*. In fact, it would be expected that an acidic fluid would dissolve and *increase* the permeability of the formation. As stated *supra*, the method of *Hanlon* is not directed to increasing permeability but rather to reducing permeability. Thus, the method of *Hanlon* does not contain an acid.

Examiner's Rejection Over Hanlon and Mumallah. The Examiner has rejected Claims 2, 3, 10 and 34 under 35 U.S.C. 103(a) as being unpatentable over *Hanlon* in view of U.S. Patent No. 4,917,186 ("Mumallah"). This ground of rejection is also traversed.

Mumallah fails to cure the deficiencies of *Hanlon*. *Mumallah*, like *Hanlon*, is directed to a method for *reducing* the water permeability of subterranean formations and not to a method of *increasing* permeability. Further, the composition used in *Mumallah* does not contain an aqueous acid solution.

Examiner's Rejection Over Dawson and Kerver. The Examiner has further rejected Claims 1-7, 9, 12, 13, 27-31, 33, 36 and 37 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,624,795 ("Dawson") in view of U.S. Patent No. 3,481,400 ("Kerver"). This ground of rejection is traversed. The Examiner acknowledges that *Dawson* fails to disclose the use of lactic acid in fracturing. In essence, the disclosure of *Dawson* is discussed in the first full paragraph of page 2 of Applicant's originally filed specification. There, it is stated that aqueous acid solutions of the prior art containing crosslinked gels which employed synthetic polymers exhibit "little to no delay due to the reactivity of the polymer and metal in acid systems."

Kerver broadly discloses the use of lactic acid in combination with ethylene diamine tetraacetic acid to clean deposits of iron oxide or sulfide. The composition disclosed in *Kerver* does not contain a crosslinking agent. As such, the composition of *Kerver*, used to alleviate the plugging of deposits, is not directed to a viscous gel containing a crosslinking agent. The Examiner state that *Kerver* discloses use of 165 gallons of a 30% solution of acid with 130 barrels of water, relying on col., 3, ll. 43-47 and 65-70; and col. 4, ll. 52-55. Applicant

respectfully disagrees. The cited passages refer to the amount of polyamino polycarboxylic acid in the solution, not the amount of lactic acid. While col. 3, ll. 40-45 references the use of lactic acid to be used in addition to the polycarboxylic acid, no guidance is provided as to the amount of lactic acid which is actually useful. Col. 4 and Table I relates to the treatment of gypsum deposits with Versene, a product identified in col. 3, ll. 51-56 as a 30% solution of the tetrasodium salt of ethylene diamine tetraacetic acid.

The Examiner further states that "discovering optimum or workable ranges involves only ordinary skill in the art." The Examiner's position is not understood because *Kerver* provides no insight as to how much lactic acid should be employed. Further, since *Kerver* does not recite a solution with a crosslinking agent, it is unclear as to why or how one of ordinary skill in the art would optimize the amount of lactic acid in order to obtain the claimed amount of Applicant. In order to optimize the amount of lactic acid, one would need to know the delaying action of lactic acid on the crosslinking of a metal crosslinking agent and the synthetic polymer, as claimed by Applicant.

Examiner's Rejection Over Dawson, Kerver and Tertiary References. The Examiner has also applied the following grounds of rejection:

- (a.) Claims 8 and 32 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* in view of *Kerver* and further in view of U.S. Patent No. 4,752,404 ("Burns");
- (b.) Claims 10 and 34 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* in view of *Kerver* and in further view of *Mumallah*; and
- (c.) Claims 14 and 38 under 35 U.S.C. 103(a) as being unpatentable over *Dawson* in view of *Kerver* and in further view of European Patent Application Publication No. EP 0275624 ("Jacobs").

These grounds of rejection are also traversed since none of the tertiary references cure the deficiencies resulting from the combination of *Dawson* and *Kerver* discussed in the paragraph above.

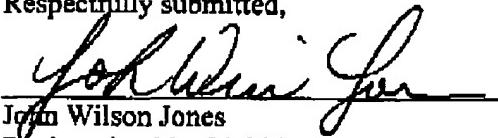
Examiner's Objection to Claims 13 and 37. The Examiner has objected to Claims 13 and 37. The amendment to Claims 13 and 37 is believed to obviate the necessity of further discussion of this objection.

Examiner's Objection to the Drawings. The Examiner has also objected to the drawings. The Examiner's position is not understood. The drawings are discussed in Example 1 and relate to

Solutions A, B, C and D of a fluid containing the lactic acid identified as "BXX-RXLA-1162"). The only reference to "BXX-AGA-818" in Applicant's specification appears in line 22 of page 6. It is unclear therefore why there would be any ambiguity as to the identification of the lactic acid in the drawings.

Conclusion. The Examiner is requested to telephone the undersigned should he deem it prudent to expedite the prosecution of this application.

Respectfully submitted,

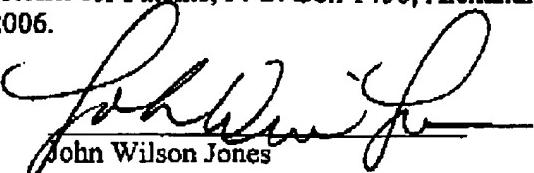

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CERTIFICATE OF TRANSMISSION, 37 C.F.R. § 1.6(d)

I hereby certify that this correspondence is being transmitted by facsimile, 571 273-8300, to Examiner Timothy Kugel c/o Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on this the 13th day of July 2006.


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